126. (Amended) A method for operation of a modem system which demodulates data bursts from a plurality of remote sites using stored channel parameters for each remote site, the method comprising:

receiving a data burst from a current remote site;

determining a next remote site which will transmit a next data burst;

determining attenuation levels and equalizer tap values for the next remote site based on a previous burst from the next remote site;

determining an equalizer phase error from the determined equalizer tap values for the next remote site;

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replacing attenuation levels and equalizer tap values for the current remote site with the determined attenuation levels and equalizer tap values for the next remote site in an equalizer once the burst from the current remote site is completed;

storing the replaced attenuation levels and equalizer tap values for the current remote site for use with a subsequent burst from the current remote site;

receiving the next burst from the next remote site;

determining an initial phase and an initial gain for the received next burst from the next remote site; and

demodulating the received next burst from the next remote site using the determined initial phase, initial gain, and equalizer phase error.

131 57. (Amended) The method of claim 126, further comprising:

determining an expected modulation type for a subsequent burst from the next remote site based on the determined initial phase and the initial gain for the next burst from the next remote site;

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selecting an adaptation factor for the equalizer based on the expected modulation type; and

applying the selected adaptation factor to the subsequent burst from the next remote site such that the probability that the attenuation levels and tap values stored after demodulating the subsequent burst are correct is increased.

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72. (Amended) A modem system for demodulating data bursts from a plurality of remote sites using stored channel parameters for the remote sites, the system comprising:

an acquisition, tracking, and modulation control module configured to determine the expected sequence of bursts from a plurality of remote sites for a modem;

a correlation, timing recovery module in communication with the acquisition, tracking, and modulation control module and configured to determine when a burst from one of the plurality of remote sites is received by the modem;

a parameter memory module configured to store equalizer tap values associated with each of the plurality of remote sites identified by the acquisition, tracking, and modulation control module;

a feed forward tap update module configured to generate feed forward equalizer tap values based on a previous burst from one of the plurality of remote sites for storage in the parameter memory module;

a decision feedback equalization adaptive algorithm module configured to generate feedback equalizer tap values for storage in the parameter memory module;

a first temporary buffer configured to store attenuation levels and tap values recalled by the modem from the parameter storage memory for a next remote site; and

a second temporary buffer configured to store attenuation levels and tap values for a current remote site prior to storing the attenuation levels and tap values in the parameter memory module.

73. (Amended) A modem system which demodulates data bursts from a plurality of remote sites using stored channel parameters for each remote site and compensates for gain droop in the modem transmitter, the system comprising:

an equalizer;

a gain droop compensation loop circuit configured to determine the gain of the equalizer based on an equalizer tap value for a demodulated data burst from a remote site; and

a processor in communication with the gain droop compensation loop circuit and the equalizer, and configured to apply the determined gain of the equalizer to at least one equalizer coefficient.

74. (Amended) A method for operation of a modem system which demodulates data bursts from a plurality of remote sites using stored channel parameters for each remote site and compensates for errors, the method comprising:

retrieving a stored channel parameter associated with a remote site;

demodulating an incoming burst from the remote site using the retrieved stored channel parameter;

determining a noise value for the demodulated burst;

determining an error value for the demodulated burst;

if the determined noise value exceeds a threshold value,

invalidating the retrieved stored channel parameter,

associating a more robust modulation scheme with the remote site;

if the determined error value exceeds a decode error threshold, invalidating the retrieved stored channel parameter; and

storing the valid channel parameter.

76. (Amended) A modem system which demodulates data bursts from a plurality of remote sites using stored channel parameters for each remote site and compensates for errors, the system comprising:

an acquisition, tracking, and modulation control module which determines the expected sequence of bursts from a plurality of remote sites;

a feed forward tap update module configured to generate equalizer tap values based on a previous burst from one of the plurality of remote sites;

a signal to noise (SNR) calculator configured to calculate a received symbol signal to noise ratio for a burst from a remote site;

a reed-solomon decoder module configured to calculate a received symbol decode error rate for the burst from the remote site;

an error recovery module in communication with the acquisition, tracking, and modulation control module and configured to compare the errors calculated by the SNR calculator and the reed-solomon decoder module for the burst from the remote site to threshold values; and

a parameter memory module in communication with the error recovery module and configured to store the equalizer tap values associated with the remote site if the threshold values are not exceeded.

90. (Amended) A modem system which demodulates data bursts from a plurality of remote sites using stored channel parameters for each remote site and an adaptation factor to improve the probability that the stored channel characteristics will be valid, the system comprising:

a reed solomon decoder configured to determine new channel characteristics and metrics for a demodulated burst from a remote site, wherein the demodulated burst was demodulated with channel characteristics and metrics from a previous burst from the remote site;

a signal to noise ratio calculator module configured to determine the new channel characteristics and metrics for the burst from the remote site;

an adaptive modulation algorithm in communication with the reed solomon decoder and the signal to noise ratio calculator module and configured to compare the determined channel characteristics and metrics; and

an acquisition, tracking and modulation control module in communication with the adaptive modulation algorithm and configured to determine an adaptation factor for use with a next burst received from the remote site based on the comparison.

91. (Amended) A method for operation of a modem system which demodulates data bursts from a plurality of remote sites using stored channel parameters for each remote site which corrects the phase shift caused by the storage of equalizer tap values, the method comprising:

correlating the input and output of an equalizer for a received data burst from a next remote site based on equalizer tap values;

determining an angle of correction for an incoming data burst from the next remote site based on the correlation; and

shifting the incoming data burst by applying the determined angle of correction to the incoming data burst.

Please add new claims 95 and 96 as follows:

95. (New) A modem system which demodulates data bursts from a plurality of remote sites using stored channel parameters for each remote site, the modem comprising:

means for receiving a data burst from a current remote site;

means for determining a next remote site which will transmit a next data burst;

means for determining attenuation levels and equalizer tap values for the next remote site based on a previous burst from the next remote site;

means for determining an equalizer phase error from the determined equalizer tap values for the next remote site;

means for replacing attenuation levels and equalizer tap values for the current remote site with the determined attenuation levels and equalizer tap values for the next remote site in an equalizer once the burst from the current remote site is completed;

means for storing the replaced attenuation levels and equalizer tap values for the current remote site for use with a subsequent burst from the current remote site;

means for receiving the next burst from the next remote site;

means for determining an initial phase and an initial gain for the received next burst from the next remote site; and

means for demodulating the received next burst from the next remote site using the determined initial phase, initial gain, and equalizer phase error.

96. (New) A modem system which demodulates data bursts from a plurality of remote sites using stored channel parameters for each remote site and compensates for gain droop in the modem transmitter, the modem comprising:

means for receiving equalizer tap values associated with a burst from a next remote site;

means for determining a gain constant for an equalizer based on the received equalizer tap values; and

means for scaling the input signal of a next burst to the equalizer to achieve a gain value of 1 based on the determined gain constant.

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